

What Is Claimed Is:

1 1. A method for up-converting an electromagnetic signal, the
2 electromagnetic signal having a first frequency, comprising:

3 (1) gating a bias signal at a rate proportional to the first frequency of
4 the electromagnetic signal to generate a harmonically rich signal having a
5 plurality of harmonics; and

6 (2) selecting at least one of said plurality of harmonics as a desired
7 signal having at least a second frequency.

1 2. The method of claim 1, further comprising:

2 (3) shaping the electromagnetic signal, resulting in a shaped signal,
3 said shaped signal being a substantially rectangular waveform having a third
4 frequency, said third frequency being proportional to the first frequency, said
5 substantially rectangular waveform further having a period that is an inverse of
6 said third frequency, a pulse width, and a pulse ratio, said pulse ratio being a ratio
7 of said pulse width to said period; and wherein

8 said bias signal is gated in step (1) at a rate proportional to said third
9 frequency.

1 3. The method of claim 2, wherein said pulse ratio is substantially equal to or
2 less than 0.5.

1 4. The method of claim 1, wherein the electromagnetic signal is modulated.

1 5. The method of claim 1, wherein said bias signal is related to an
2 information signal.

- 1 6. The method of claim 1, wherein said second frequency is higher than the
2 first frequency.

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